REMARKS

Claims 1-67 remain pending in this application. Based on the foregoing amendments and following remarks, reconsideration and allowance of this application is respectfully requested.

Specification Objection

The disclosure stands objected to because the status of the copending cases cited in the specification have not been updated. Accordingly, the specification has been amended to update the copending cases. As such, Applicant respectfully requests withdrawal of the specification objection.

Claim Rejections-35 U.S.C. §103

Claims 1-67 stand rejected under 35 U.S.C. §103, as being obvious over U.S. Patent No. 5,797,849 ("Vesely") in view of various combinations of U.S. Patent No. 6,216,027 ("Willis"), 6,298,261 ("Rex"), and 5,724,978 ("Tenhoff"). Applicant respectfully traverses these rejections, since no proper combination of Vesely, Willis, Rex, and Tenhoff discloses, teaches, or suggests the combination of elements required by these claims.

In particular, independent claims 1, 16, 34, and 42 require determining the difference between a first distance extending from the location element to the first reference element and a second difference extending from the location element to the second reference element based on a transit time difference, and determining the coordinates of the location element based on the distance difference. By way of non-limiting example, the Examiner is directed to Figs. 7 and 8 of the specification, which illustrate exemplary distance differences

(r_1-r_2) and (r_2-r_3) on which a determination of the location of the location element TX is based.

In the Office Action, the Examiner stated "it would have been obvious in view of Willis et al Fig. 2 to implement the mathematics of triangulation referenced in col. 6 lines 24-40 therein as a vector differencing between transit times for first and second and/or further signaling sets are determined by amplitude thresholding in order to triangulate a source location such as a cardiac ablation probe within a registration frame of reference whereupon the artisan would entertain this basis for conventional trigonometric solutions for three-dimensional triangular location transponders as in Vesely et al Fig. 1." It appears from this that the Examiner has concluded that Willis discloses determining the difference between the distance extending between one of the transducers T_{REF1}-T_{REF4} and the catheter transducer T_{CATH}, and the distance extending between one of the transducers T_{REF1}-T_{REF4} and the catheter transducer T_{CATH}. However, no such disclosure exists. Instead, Willis discloses determining the distance between each of the transducers T_{REF1}-T_{REF4} and the catheter transducer T_{CATH} with out determining the differences between these distances. For example, as applied to Figs. 7 and 8 of the present application, Willis would determine the distances r_1, r_2, and r_3, but not the distance difference (r_1-r_2) or the distance difference (r_2-r_3), as required by independent claims 1, 16, 34, and 42.

In addition, independent claims 34 and 42 require determining an angle formed by the location element and the reference array based on the distance difference and a distance between the first and second reference elements. By way of non-limiting example, the Examiner is again directed to Figs. 7 and 8 of the specification, which illustrate exemplary angles θ and Φ that are determined between the location element TX and the reference array (RX_1-RX_3). Although the Examiner states that in-plane and out-of-plane angles are determined in the triangulation techniques of Vesely and Willis, Applicant can find no disclosure where an angle between a location element and a reference array is determined based on the distance difference described above and the distance between first and second reference elements, as required by independent claims 34 and 42.

Dependent claims 8-11 and 23-26 require specific angle and perpendicular plane determination techniques. The Examiner has cited Tenhoff as a basis for concluding that planar angles and perpendiculars can be determined using trigonometric techniques. However, the specific angle determination techniques recited in claims 8-11 and 23-26 are simply not found in Tenhoff. If the Examiner believes otherwise, he is respectfully requested to point out where in Tenhoff these specific techniques can be found.

Independent claims 53 and 59 require cross-correlating a first signal received between a location element and a first reference element and a second signal received between the location element and a second reference element. The Examiner has cited Rex to support the conclusion that it would have been obvious to incorporate cross-correlation of signals into the Vesely technique. However, Rex cross-correlates the signal transmitted by the transducer 34 and the signal received by the transducer 36 (see col. 5, line 64 to col. 6, line 7)—not a first signal transmitted between the transmitting transducer 34 and the receiving transducer 34 and a second signal transmitted between the transmitting transducer 34 and another receiving transducer, as would be required by independent claims 53 and 59.

Thus, Applicant submits that independent claims 1, 16, 34, 42, 53, and 59, as well as the claims depending therefrom (2-15, 17-33, 35-41, 43-52, 54-58, and 60-67), are not obvious over any combination of Vesely, Willis, Rex, and Tenhoff, and such, respectfully requests withdrawal of the rejections of these claims.

Conclusion

Based on the foregoing, it is believed that all claims are now allowable and a Notice of Allowance is respectfully requested. If the Examiner has any questions or comments regarding this amendment, the Examiner is respectfully requested to contact the undersigned at (949) 724-1849.

Respectfully submitted,

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Dated: February 7, 2007

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